

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application.

1. (previously presented) A method of producing a metal mesoporphyrin compound comprising: isolating a mesoporphyrin formate; and converting the mesoporphyrin formate to a metal mesoporphyrin compound.
2. (previously presented) The method of claim 1, wherein the mesoporphyrin formate is converted directly to the metal mesoporphyrin compound.
3. (previously presented) The method of claim 1, wherein the mesoporphyrin formate is first converted to mesoporphyrin dihydrochloride and the mesoporphyrin dihydrochloride is converted to the metal mesoporphyrin compound.
4. (previously presented) The method of claim 3, wherein the mesoporphyrin dihydrochloride is reacted with an insert metal to form the metal mesoporphyrin compound.
5. (previously presented) The method of claim 3, further comprising purifying the mesoporphyrin formate in the presence of a metal scavenger.
6. (previously presented) The method of claim 5, wherein the metal scavenger includes Si-thiol.
7. (previously presented) The method of claim 4, further comprising catalytically hydrogenating hemin in the presence of an acid to form the mesoporphyrin formate.
8. (currently amended) The method of claim 7, wherein the ~~step of catalytically hydrogenating~~ catalytic hydrogenation of the hemin occurs in two steps.

9. (previously presented) The method of claim 8, further comprising heating a mixture of hemin and a hydrogenation catalyst under pressure at a first temperature for a first period of time and subjecting the mixture to a second temperature under pressure for a second period of time.

10. (previously presented) The method of claim 9, wherein the first temperature is higher than the second temperature.

11. (previously presented) The method of claim 1, wherein the metal mesoporphyrin compound is a metal mesoporphyrin halide.

12. (previously presented) The method of claim 10, further comprising: a) subjecting a reaction mixture of hemin and a hydrogenation catalyst in an acid to hydrogen pressure of about 30-65 psi and then raising the temperature to about 85-95° C and maintaining the temperature within that range for a period of about 1-3 hours; b) subjecting the reaction mixture to a further hydrogen pressure of about 30-65 psi at a temperature range of about 45-50° C for a period of about 24-48 hours; and c) recovering the mesoporphyrin formate from the reaction mixture by precipitation of the mixture with a solvent.

13. (previously presented) The method of claim 7, wherein the acid is formic acid.

14. (previously presented) The method of claim 12, wherein the solvent is an ether.

15. (previously presented) The method of claim 14, wherein the solvent is methyl tert-butyl ether.

16. (previously presented) The method of claim 15, wherein the hydrogenation catalyst is palladium on carbon.

17. (previously presented) The method of claim 1, wherein the quantity of metal mesoporphyrin compound formed by a single performance of the method exceeds 0.1 kg.

18. (previously presented) The method of claim 1, further comprising purifying the metal mesoporphyrin compound, including: a) dissolving the metal mesoporphyrin compound in an aqueous basic solution to obtain a dissolved metal mesoporphyrin compound; b) treating said dissolved metal mesoporphyrin compound with charcoal to obtain a treated metal mesoporphyrin compound; c) adding said treated metal mesoporphyrin compound to a first aqueous acid solution to obtain a precipitated metal mesoporphyrin compound; d) triturating said precipitated metal mesoporphyrin halide in a second aqueous acid solution at elevated temperature to obtain a substantially pure metal mesoporphyrin compound; and e) drying said substantially pure metal mesoporphyrin compound.

19. (previously presented) The method of claim 18, wherein the metal mesoporphyrin halide is tin (IV) mesoporphyrin IX dihydrochloride.

20. (withdrawn) A method of producing stannsoporfin comprising: isolating mesoporphyrin IX formate in substantially pure, solid form; and converting the mesoporphyrin IX formate to stannsoporfin.

21. (withdrawn) The method of claim 20, further comprising converting the mesoporphyrin IX formate to mesoporphyrin IX dihydrochloride and reacting the mesoporphyrin dihydrochloride with a tin insert metal to form stannsoporfin.

22. (withdrawn) The method of claim 21, further comprising purifying the mesoporphyrin formate with a metal scavenger.

23. (withdrawn) The method of claim 22, wherein the metal scavenger includes a silica bound metal scavenger.

24. (withdrawn) The method of claim 23, further comprising purifying the stannosoporphin to provide pharmaceutical grade stannosoporphin.

25. (currently amended) The method of claim 19, further comprising reacting the mesoporphyrin IX dihydrochloride with tin to form tin ~~[[V]]~~ (IV) mesoporphyrin IX dichloride.

26. (previously presented) The method of claim 1, wherein the mesoporphyrin formate is isolated in substantially pure, solid form.

27. (currently amended) The method of claim 26, wherein the mesoporphyrin ~~compound~~ formate is converted to mesoporphyrin IX dihydrochloride.

28. (previously presented) The method of claim 27, further comprising reacting the mesoporphyrin IX dihydrochloride with tin to form tin (IV) mesoporphyrin IX dichloride.

29. (currently amended) The method of claim 28, wherein the quantity of tin (IV) mesoporphyrin IX dichloride formed by a single performance of the method exceeds ~~multiple~~ 0.1 kilograms.

30. (currently amended) The method of claim ~~[[28]]~~ 26, further comprising purifying the mesoporphyrin formate with a metal scavenger.

31. (currently amended) The method of claim ~~[[20]]~~ 30, wherein the metal scavenger includes a silica bound metal scavenger.

32. (currently amended) The method of claim 28, further comprising purifying the tin (IV) mesoporphyrin IX dichloride includes trituration in hot acid at an elevated ~~tempertature~~ temperature.

33. (previously presented) The method of claim 32, wherein the acid is HCl.

34. (previously presented) The method of claim 11, wherein the metal mesoporphyrin halide is mesoporphyrin IX dihydrochloride.

35. (previously presented) The method of claim 18, wherein the metal mesoporphyrin compound is a metal mesoporphyrin halide.

36. (previously presented) The method of claim 4, wherein the mesoporphyrin dihydrochloride is reacted with the insert metal in the absence of any acetate ions.

37. (currently amended) The method of claim 28, wherein the mesoporphyrin dihydrochloride is reacted with the tin ~~insert-metal~~ in the absence of any acetate ions.

38. (previously presented) The method of claim 17, wherein the quantity of metal mesoporphyrin compound formed by a single performance of the method exceeds 1 kg.

39. (previously presented) The method of claim 18, wherein the quantity of metal mesoporphyrin compound formed by a single performance of the methods exceeds 1 kg.

40. (previously presented) The method of claim 28, wherein the quantity of tin (IV) mesoporphyrin IX dichloride formed by a single performance of the methods exceeds 1 kg.

41. (previously presented) Tin (IV) mesoporphyrin IX dichloride produced by a single performance of the method of claim 28.